What is claimed is:

1. A multi-frequency printed antenna, comprising:

a substrate with an insulating plate structure and having a first surface and a second surface opposite to the first surface;

a feed strip formed on the first surface and extending in a first direction, in which one end of the feed strip is connected to a signal terminal of an RF signal source;

a first radiating conductive strip formed on the first surface and extending in the first direction, in which the first radiating conductive strip has a first connecting portion for connecting to another end of the feed strip;

a second radiating conductive strip formed on the first surface and extending in the first direction, in which the second radiating conductive strip has a second connecting portion for connecting to the another end of the feed strip;

a ground strip formed on the second surface and extending in the first direction, in which one end of the ground strip is connected to a ground terminal of the RF signal source;

a first grounded conductive strip formed on the second surface and extending in the first direction, in which the first grounded conductive strip has a third connecting portion for connecting to another end of the ground strip; and

a second grounded conductive strip formed on the second surface and extending in the first direction, in which the second grounded conductive strip has a fourth connecting portion for connecting to the another end of the ground strip,

wherein the first radiating conductive strip and the first ground conductive strip form a first half wavelength dipole antenna for a first frequency transmission while the second radiating conductive strip and the second ground conductive strip form a second half wavelength dipole antenna for a second frequency transmission.

2. The multi-frequency printed antenna according to claim 1, wherein the first and second radiating conductive strips are symmetrically disposed on opposite sides with respect to the feed strip.

3. The multi-frequency printed antenna according to claim 1, wherein the feed strip and the first radiating conductive strip are disposed on opposite sides with respect to the first connecting portion.

4. The multi-frequency printed antenna according to claim 3, wherein the feed strip and the second radiating conductive strip are disposed on opposite sides with respect to the second connecting portion.

5. The multi-frequency printed antenna according to claim 1, wherein the feed strip substantially overlies the ground strip.

6. The multi-frequency printed antenna according to claim 1, wherein the first and second connecting portions extend in a second direction substantially perpendicular to the first direction.

7. The multi-frequency printed antenna according to claim 1, wherein the first radiating conductive strip and the second ground conductive strip form a third half wavelength dipole antenna for a third frequency transmission.

8. The multi-frequency printed antenna according to claim 1, wherein the first and second grounded conductive strips are symmetrically disposed on opposite sides with respect to the ground strip.

9. The multi-frequency printed antenna according to claim 1, wherein the ground strip and the first grounded conductive strip are disposed in the same side with respect to the third connecting portion.

10. The multi-frequency printed antenna according to claim 9, wherein the ground strip and the second grounded conductive strip are disposed in the same side with respect to the fourth connecting portion.

11. The multi-frequency printed antenna according to claim 1, wherein the third and fourth connecting portions extend in a second direction substantially perpendicular to the first direction.

12. The multi-frequency printed antenna according to claim 1, wherein the second radiating conductive strip and the first ground conductive strip form a fourth half wavelength dipole antenna for a fourth frequency transmission.

13. The multi-frequency printed antenna according to claim 1, further comprising:

a first via hole penetrating through the substrate and located at the first connecting portion;

a third radiating conductive strip formed on the second surface and extending in the first direction, overlying the first radiating conductive strip, in which the third radiating conductive strip has one end connected to the first connecting portion through the first via hole;

a second via hole penetrating through the substrate and located at the second connecting portion; and

a fourth radiating conductive strip formed on the second surface and extending in the first direction, overlying the second radiating conductive strip, in which the fourth radiating conductive strip has one end connected to the second connecting portion through the second via hole.

14. The multi-frequency printed antenna according to claim 1, further comprising:

a third via hole penetrating through the substrate and located at the third connecting portion;

a third grounded conductive strip formed on the first surface and extending in the first direction, overlying the first grounded conductive strip, in which the third grounded conductive strip has one end connected to the third connecting portion through the third via hole;

a fourth via hole penetrating through the substrate and located at the fourth connecting portion; and

a fourth grounded conductive strip formed on the first surface and extending in the first direction, overlying the second grounded conductive strip, in which the fourth grounded conductive strip has one end connected to the fourth connecting portion through the fourth via hole.

15. A multi-frequency printed antenna, comprising:

a substrate with an insulating plate structure and having a first surface and a second surface opposite to the first surface;

a feed strip formed on the first surface and extending in a first direction, in which one end of the feed strip is connected to a signal terminal of an RF signal source;

a first radiating conductive strip formed on the first surface and extending in the first direction, in which the first radiating conductive strip is in end-to-end connection with another end of the feed strip;

a second radiating conductive strip formed on the second surface and extending in the first direction, overlying the first radiating conductive strip, in which the second radiating conductive strip has one end connected with the first radiating conductive strip through a first via hole opened in the substrate;

a ground strip formed on the second surface and extending in the first direction, in which one end of the ground strip is connected to a ground terminal of the RF signal source;

a first grounded conductive strip formed on the second surface and extending in the first direction, in which the first grounded conductive strip has a first connecting portion for connecting to another end of the ground strip;

a second grounded conductive strip formed on the second surface and extending in the first direction, in which the second grounded conductive strip

has a second connecting portion for connecting to the another end of the ground strip;

a second via hole penetrating through the substrate and located at the first connecting portion;

a third grounded conductive strip formed on the first surface and extending in the first direction, overlying the first grounded conductive strip, in which the third grounded conductive strip has one end connected to the first connecting portion through the second via hole;

a third via hole penetrating through the substrate and located at the second connecting portion; and

a fourth grounded conductive strip formed on the first surface and extending in the first direction, overlying the second grounded conductive strip, in which the fourth grounded conductive strip has one end connected to the second connecting portion through the second via hole,

wherein each of the first and second radiating conductive strips together with each of the first to fourth ground conductive strips form a dipole antenna for achieving multi-frequency transmission.

16. The multi-frequency printed antenna according to claim 15, wherein the first and second grounded conductive strips are symmetrically disposed on opposite sides with respect to the ground strip.

17. The multi-frequency printed antenna according to claim 15, wherein the ground strip and the first grounded conductive strip are disposed on the same side with respect to the first connecting portion.

18. The multi-frequency printed antenna according to claim 17, wherein the ground strip and the second grounded conductive strip are disposed on the same side with respect to the second connecting portion.

19. The multi-frequency printed antenna according to claim 15, wherein the first connecting portion extends in a second direction substantially perpendicular to the first direction.

20. The multi-frequency printed antenna according to claim 19, wherein the second connecting portion extends in the second direction.